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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Afshin Momtaz

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EXAMINER

COX, CASSANDRA F

ART UNIT

PAPER NUMBER

2816

DATE MAILED: 09/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/776,074	Applicant(s) MOMTAZ, AFSHIN	
	Examiner Cassandra Cox	Art Unit 2816	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3,7-9,17,18,22,23,30 and 31 is/are allowed.
- 6) ☒ Claim(s) 1,2,4-6,10-16,19-21,24-29 and 32-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's arguments filed 07/10/06 have been fully considered but they are not persuasive. The rejection has been repeated below.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-2, 4-6, 10-16, 19-21, 24-29, 32-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 10, 15, and 19 are indefinite because the claims are unclear. It is unclear what applicant means by the phrases "a phase relationship with the first signal" and "at substantially the phase relationship with the first signal". The exact phase relationship is unclear... are they in phase with each other? Are they out of phase with each other? Or are they phase shifted in some way from each other? Correction or clarification is required.

Claims 2, 4-6, 11-14, 16, 20-21, 24-29, and 32-37 are also rejected due to the limitations of the base claims and any intervening claims.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-2, 4, 10-11, 24-28, 32-35, and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Sari et al. (SARI, H., et al. 'Phase and Frequency Detectors for Clock Synchronization in High-speed Optical Transmission Systems. " European Transactions On Telecommunications and Related Technologies, vol. 5, no. 5, September - October 1994, pp. 101-107).

In reference to claim 1 Sari discloses in Figures 4-5 a binary phase detector comprising: a first flip flop (1) comprising: a data input coupled to a first signal (Received Signal/ Clock in Figure 4) having a first frequency, and a clock input coupled to a second signal (Recovered Clock (Input Signal in Figure 4)) having a second frequency and a phase relationship with the first signal, wherein the first frequency is a multiple of the second frequency; and a second flip flop (2) comprising: a data input coupled to the output of the first flip flop (1), and a clock input coupled to the second signal (Recovered clock) at substantially the phase relationship with the first signal. With respect to the phrases "a phase relationship with the first signal" and " at substantially the phase relationship with the first signal", these phrases are indefinite and do not disclose a particular phase relationship, therefore any phase relationship between the second signal (Recovered Clock) and the first signal (Received Signal) would read on the limitation (whether that relationship be two signals that are in phase, out of phase, or phase shifted). The same applies to claims 10-11, 25, 33, and 37.

In reference to claim 2, Sari discloses in Figure 5 wherein the first flip flop (1) is a high-speed flip-flop.

In reference to claim 4, Sari discloses in Figure 5 wherein the second flip flop (2) is a low speed flip flop.

In reference to claim 24, Sari discloses in Figures 4-5 that by the data input receiving the higher speed clock signal, each data input will provide a lower capacitive load than each clock input so that a lower capacitive load is provided to higher frequency signals than is provided to lower frequency signals. The same applies to claims 28, 32, and 35.

In reference to claim 26, Sari discloses in Figure 5 wherein an output of the second flip flop provides a binary indication of whether the first signal leads or lags the second signal.

In reference to claim 27, Sari discloses in Figure 5 wherein a signal at the data input of the low speed flip flop (2) is of a lower frequency than the first frequency such that the low speed flip flop is adapted to operate at a lower speed than the high speed flip flop. The same applies to claim 34.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 12, 15, and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (U.S. Patent No. 6,388,485) in view of Sari et al. (SARI, H., et al.

'Phase and Frequency Detectors for Clock Synchronization in High-speed Optical Transmission Systems. " European Transactions On Telecommunications and Related Technologies, vol. 5, no. 5, September - October 1994, pp. 101-107).

In reference to claim 15, Kim discloses in Figure 3 a delay lock loop comprising: phase detector; digital filter (342), coupled to receive the at least one phase error signal (DS through controller 324), that generates at least one filtered signal (DCON2); and a phase rotator (344), coupled to receive the at least one filtered signal (DCON2) and the second signal (ECLK), that delays the second signal according to the at least one filtered signal (DCON2). Kim does not disclose that the phase detector comprises a first and second flip-flop. Sari discloses a phase detector as mentioned above with respect to claim 1. It would have been obvious to one skilled in the art at the time of the invention that the binary phase detector of Sari could be used in the circuit of Kim as the phase detector for the advantage of being able to decrease design time by using a well known design for a phase detector. The same applies to claim 19, wherein Kim discloses in column 5, lines 49-50 (with reference to Figure 5) that the delay controller is implemented as a charge pump and the loop filter is seen to be element 542. The same also applies to claim 12, wherein all the limitations of the base claim and any intervening claims are met by Sari as mentioned above with reference to claim 10.

In reference to claim 20 the delay circuit (544 of Kim) comprises at least one delay line.

Allowable Subject Matter

8. Claims 3, 7-9, 17-18, 22-23, and 30-31 are allowed.

9. Claims 5-6, 13-14, 16, 21, 29, and 36 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter: Claims 5-6, 16, 21, 29, and 36 would be allowable because the closest prior art of record fails to disclose a circuit as shown in Figure 8 wherein the high speed flip flop comprises a high speed latch (710) and a low speed latch (720) in combination with the rest of the limitations of the base claims and any intervening claims. Claims 13 would be allowable because the closest prior art of record fails to disclose a circuit as shown in Figure 8 wherein the first, second, and output signal comprise differential signals in combination with the rest of the limitations of the base claims and any intervening claims. Claims 14 would be allowable because the closest prior art of record fails to disclose a circuit as shown in Figure 8 wherein the circuit comprises an inductive load (L1, L2) for the first flip flop (710) in combination with the rest of the limitations of the base claims and any intervening claims.

11. The following is an examiner's statement of reasons for allowance: Claims 3, 9, 17, and 22 are allowed because the closest prior art of record fails to disclose a circuit as shown in Figure 8 wherein the circuit comprises an inductive load (L1, L2) for the first flip flop (710) in combination with the rest of the limitations of the base claims and any intervening claims. Claims 7, 18, and 23 are allowed because the closest prior art of record fails to disclose a circuit as shown in Figure 8 wherein the first, second, and output signal comprise differential signals in combination with the rest of the limitations

of the base claims and any intervening claims. Claims 8 and 30-31 are allowed because the closest prior art of record fails to disclose a circuit as shown in Figure 8 wherein the high speed flip flop comprises a high speed latch (710) and a low speed latch (720) in combination with the rest of the limitations of the base claims and any intervening claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

12. Applicant's arguments filed 07/10/06 have been fully considered but they are not persuasive. In reference to applicant's argument that the clock inputs of the first and second flip flops of Sari are 180 degrees out of phase with each other and therefore have substantially different phase relationships with the "Received Signal" of Sari is not persuasive. With respect to the phrases "a phase relationship with the first signal" and "at substantially the phase relationship with the first signal", these phrases are indefinite and do not disclose a particular phase relationship, therefore any phase relationship between the second signal (Recovered Clock) and the first signal (Received Signal) would read on the limitation (whether that relationship be two signals that are in phase, out of phase, or phase shifted). The rejection is maintained and made Final.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cassandra Cox whose telephone number is 571-272-1741. The examiner can normally be reached on Monday-Thursday from 7:00 AM to 4:30 PM and on alternate Fridays from 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 571-272-1740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CC



September 16, 2006



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